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CLAIMS

1. A method for forming a transparent inter-metal dielectric in a CMOS image sensor comprising:

forming a base SiO₂ layer,

forming a flowlayer on the base SiO_2 layer by reacting SiH_4 and H_2O_2 , and

forming a cap SiO₂ layer on the flowlayer,

wherein forming the flowlayer includes using a shortened H_2O_2 stabilization time in the range of 30 seconds to approximately 50 seconds.

- 2. The method according to Claim 1, wherein the shortened H_2O_2 stabilization time is approximately 50 seconds.
- 3. The method according to Claim 1, wherein forming the flowlayer further comprises using an H_2O_2 deposition pressure in the range of 400 mTorr to approximately 600 mTorr.
- 4. The method according to Claim 2, wherein forming the flowlayer further comprises using an H_2O_2 deposition pressure of approximately 500 mTorr.
- 5. The method according to Claim 1, wherein forming the flowlayer further comprises maintaining the reaction chamber platen at a target value in the range of 0.5 to 3°C.
- 6. The method according to Claim 2, wherein forming the flowlayer further comprises maintaining the reaction chamber platen at a target value of approximately 1°C.

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7. The method according to Claim 3, wherein forming the flowlayer further comprises maintaining the reaction chamber platen at a target value in the range of 0.5 to 3°C.

- 8. The method according to Claim 3, wherein forming the flowlayer further comprises maintaining the reaction chamber platen at a target value of approximately 1°C.
- 9. A method for forming a transparent inter-metal dielectric in a CMOS image sensor comprising:

forming a base SiO₂ layer,

forming a flowlayer on the base SiO_2 layer by reacting SiH_4 and H_2O_2 , and

forming a cap SiO2 layer on the flowlayer,

wherein forming the flowlayer includes using an ${\rm H}_2{\rm O}_2$ deposition pressure in the range of 400 mTorr to approximately 600 mTorr.

- 10. The method according to Claim 9, wherein the $\rm H_2O_2$ deposition pressure is approximately 500 mTorr.
- 11. The method according to Claim 9, wherein forming the flowlayer further comprises maintaining the reaction chamber platen at a target value in the range of 0.5 to 3°C.
- 12. The method according to Claim 10, wherein forming the flowlayer further comprises maintaining the reaction chamber platen at a target value of approximately 1°C.
- 13. A method for forming a transparent inter-metal dielectric in a CMOS image sensor comprising:

mounting a substrate on a platen in a reaction chamber,

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forming a base SiO2 layer over the substrate,

forming a flowlayer on the base SiO_2 layer by reacting SiH_4 and $\mathrm{H}_2\mathrm{O}_2$, and

forming a cap SiO2 layer on the flowlayer,

wherein forming the flowlayer includes maintaining the reaction chamber platen at a target value in the range of 0.5 to $3\,^{\circ}\text{C}$.

14. The method according to Claim 3, wherein the target value is approximately 1°C.